Computer Information Science

Computer science focuses on the many uses of computers in business and industry. Computers play an integral role in inventory control, payroll, customer service and tracking, networks and sales including support of web-based activities. At American River College, the Computer Information Science department offers many areas of study. These include both degree and certificate programs. The degree and certificate programs include programming, database management, web publishing/programming, networking, PC support and software applications. Our overall academic program includes lecture courses as well as combination lecture/laboratory courses to cover the techniques and skills required in this industry. Our Common Certificate Core developed with the help of local business leaders combined with specialized courses, provides students with the skills necessary to advance in many rapidly growing computer specialties. In each of our areas of study, students will acquire skills that can be used in both professional positions in business and industry and in advanced study at a four year institution. Students will gain a fundamental knowledge of computers using state-of-the-art equipment and the most current software available.

Career Opportunities

Our graduates can look forward to rewarding careers in programming, systems analysis, network administration, database administration, web publishing, web programming, help desk, microcomputer technical support and office management.

## Computer Science A.S.

**Requirements for Degree Major**

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISP 300</td>
<td>3</td>
</tr>
<tr>
<td>CISP 310 or 319</td>
<td>4</td>
</tr>
<tr>
<td>CISP 360</td>
<td>4</td>
</tr>
<tr>
<td>CISP 430</td>
<td>4</td>
</tr>
<tr>
<td>CISP 440</td>
<td>3</td>
</tr>
<tr>
<td>MATH 400</td>
<td>5</td>
</tr>
<tr>
<td>MATH 401</td>
<td>5</td>
</tr>
<tr>
<td>and 3 units from the following:</td>
<td></td>
</tr>
<tr>
<td>MATH 410</td>
<td>3</td>
</tr>
<tr>
<td>MATH 420</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 410</td>
<td>5</td>
</tr>
<tr>
<td>and 3 units from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 410</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 420</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 430 or 431</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 400</td>
<td>5</td>
</tr>
<tr>
<td>ENGR 401</td>
<td>3.5</td>
</tr>
<tr>
<td>ENGR 413</td>
<td>4.5</td>
</tr>
</tbody>
</table>

**Recommended Electives**

CISC 310; CISP 310, 365, 370, 400, 409, 453

**General Education Graduation Requirements:** In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

## Computer Networking Management

**Requirements for Degree Major**

<table>
<thead>
<tr>
<th>Core Requirements</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 or 301</td>
<td>3.5</td>
</tr>
<tr>
<td>BUS 300</td>
<td>3</td>
</tr>
<tr>
<td>BUS 310 or ENGR 300</td>
<td>3</td>
</tr>
<tr>
<td>BUSTEC 300 or passing of a keyboarding competency test 0-1</td>
<td></td>
</tr>
<tr>
<td>CISA 305</td>
<td>2</td>
</tr>
<tr>
<td>CISA 315</td>
<td>2</td>
</tr>
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</table>

American River College 2005-2006
CISCO Concentration Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
<tr>
<td>CISC 320</td>
<td>1</td>
</tr>
<tr>
<td>CISC 323</td>
<td>1</td>
</tr>
<tr>
<td>CISC 324</td>
<td>1</td>
</tr>
<tr>
<td>CISC 361</td>
<td>3</td>
</tr>
<tr>
<td>CISN 110</td>
<td>2</td>
</tr>
<tr>
<td>CISN 111</td>
<td>2</td>
</tr>
<tr>
<td>CISN 140</td>
<td>3</td>
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<tr>
<td>CISN 141</td>
<td>3</td>
</tr>
<tr>
<td>CISN 142</td>
<td>3</td>
</tr>
<tr>
<td>CISN 143</td>
<td>3</td>
</tr>
</tbody>
</table>

and 5 units selected from the following:
CISA 340, 405; CISC 306; CISN 314; CISP 360, 400, 430; CISW 310, 350, 400

LINUX Concentration Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
<tr>
<td>CISC 320</td>
<td>1</td>
</tr>
<tr>
<td>CISC 323</td>
<td>1</td>
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<tr>
<td>CISC 324</td>
<td>1</td>
</tr>
<tr>
<td>CISC 361</td>
<td>3</td>
</tr>
<tr>
<td>CISN 110</td>
<td>2</td>
</tr>
<tr>
<td>CISN 111</td>
<td>2</td>
</tr>
<tr>
<td>CISN 119</td>
<td>3</td>
</tr>
<tr>
<td>CISN 120</td>
<td>3</td>
</tr>
<tr>
<td>CISN 121</td>
<td>2</td>
</tr>
<tr>
<td>CISN 122</td>
<td>2</td>
</tr>
</tbody>
</table>

and 5 units selected from the following:
CISA 340, 405; CISC 306; CISN 314; CISP 360, 400, 430; CISW 310, 350, 400

WINDOWS Concentration Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
<tr>
<td>CISC 320</td>
<td>1</td>
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<tr>
<td>CISC 323</td>
<td>1</td>
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<tr>
<td>CISC 361</td>
<td>3</td>
</tr>
<tr>
<td>CISN 100</td>
<td>3</td>
</tr>
<tr>
<td>CISN 102</td>
<td>3</td>
</tr>
<tr>
<td>CISN 105</td>
<td>3</td>
</tr>
<tr>
<td>CISN 108</td>
<td>3</td>
</tr>
<tr>
<td>CISN 110</td>
<td>2</td>
</tr>
<tr>
<td>CISN 111</td>
<td>2</td>
</tr>
</tbody>
</table>

and 5 units selected from the following:
CISA 340, 405; CISC 306; CISN 314; CISP 360, 400, 457; CISW 310, 350, 400

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

Information Systems Security

This program is designed to provide the tools and skills necessary to work in this rapidly growing and increasingly important field.

Requirements for Degree Major 32 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 310</td>
<td>3</td>
</tr>
<tr>
<td>BUS 340</td>
<td>3</td>
</tr>
<tr>
<td>CISC 323</td>
<td>1</td>
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<tr>
<td>CISC 324</td>
<td>1</td>
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<tr>
<td>CISN 110</td>
<td>3</td>
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<tr>
<td>CISN 111</td>
<td>3</td>
</tr>
<tr>
<td>CISS 310</td>
<td>3</td>
</tr>
<tr>
<td>CISS 320</td>
<td>3</td>
</tr>
<tr>
<td>CISS 330</td>
<td>3</td>
</tr>
<tr>
<td>CISS 341 or 342</td>
<td>3</td>
</tr>
<tr>
<td>CISS 350</td>
<td>3</td>
</tr>
<tr>
<td>CISS 360</td>
<td>3</td>
</tr>
</tbody>
</table>

Recommended Electives
CISC 310, 350, 351, 498; CISS 170, 200, 202; CISS 301, 341, 342

Requirements for Certificate 26 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 units from CISS 170, 200, 202; CISP 350, 360</td>
<td>6</td>
</tr>
<tr>
<td>CISC 323, 324; CISS 100, 110; CISS 310, 320, 330; CISS 341 or 342</td>
<td>20</td>
</tr>
</tbody>
</table>

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

Microcomputer Applications

The program will concentrate on the use of the microcomputer and current software to solve problems in the business environment. The training will include microcomputer applications in accounting, database, desktop publishing, electronic spreadsheets, graphics, operating systems, integrating software, telecommunications, word processing, and at least one programming language.

Requirements for Degree Major 36-37 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 301</td>
<td>4</td>
</tr>
<tr>
<td>BUS 110 or ECON 302</td>
<td>3</td>
</tr>
<tr>
<td>BUS 300</td>
<td>3</td>
</tr>
<tr>
<td>BUS 340</td>
<td>3</td>
</tr>
<tr>
<td>BUS/TEC 300 or keyboarding competency</td>
<td>0-1</td>
</tr>
<tr>
<td>CISA 305</td>
<td>2</td>
</tr>
<tr>
<td>CISA 306</td>
<td>2</td>
</tr>
<tr>
<td>CISA 315</td>
<td>2</td>
</tr>
<tr>
<td>CISA 316</td>
<td>2</td>
</tr>
<tr>
<td>CISA 320</td>
<td>1</td>
</tr>
<tr>
<td>CISC 300</td>
<td>1</td>
</tr>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
</tbody>
</table>
Computer Information Science

CISC 320 (Windows) 1
CISC 233 1
CISP 450 or 457 3
and two units selected from the following:
ACCT 341; CISA 321, 330, 340; CISC 350, 351 2
and 3 units selected from the following:
CISP 320, 340, 350, 365, 370 3

Recommended Electives
ACCT 311, 343; BUS 310; CISA 331; CISC 300 (MAC)

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

PC Support Management

Requirements for Degree Major 38-40 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 or 301</td>
<td>3-4</td>
</tr>
<tr>
<td>BUS 110 or ECON 302</td>
<td>3</td>
</tr>
<tr>
<td>CISC 300</td>
<td>3</td>
</tr>
<tr>
<td>BUS 310 or ENGWR 300</td>
<td>3</td>
</tr>
<tr>
<td>BUS 340</td>
<td>3</td>
</tr>
<tr>
<td>BUSTEC 300 or passing of a keyboarding competency test</td>
<td>0-1</td>
</tr>
<tr>
<td>CISA 305</td>
<td>2</td>
</tr>
<tr>
<td>CISA 315</td>
<td>2</td>
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<tr>
<td>CISA 320</td>
<td>1</td>
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<tr>
<td>CISA 340</td>
<td>2</td>
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<tr>
<td>CISC 305</td>
<td>1</td>
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<tr>
<td>CISC 306</td>
<td>1</td>
</tr>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
<tr>
<td>CISC 320 (Windows)</td>
<td>1</td>
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<tr>
<td>CISC 350</td>
<td>1</td>
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<td>CISC 361</td>
<td>3</td>
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<td>CISC 362</td>
<td>2</td>
</tr>
<tr>
<td>CISC 363</td>
<td>2</td>
</tr>
<tr>
<td>CISP 110</td>
<td>2</td>
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</table>

Requirements for Certificate 24 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 310; CISA 305, 315, 320; CISC 305, 306 or 321, 310, 320 (Windows), 350, 361, 362, 363; CSN 310</td>
<td></td>
</tr>
</tbody>
</table>

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

Programming

Requirements for Degree Major 35-37 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 301</td>
<td>4</td>
</tr>
<tr>
<td>BUS 110 or ECON 302</td>
<td>3</td>
</tr>
<tr>
<td>BUS 300</td>
<td>3</td>
</tr>
<tr>
<td>BUS 340</td>
<td>3</td>
</tr>
<tr>
<td>BUSTEC 300 or keyboarding competency</td>
<td>0-1</td>
</tr>
<tr>
<td>CISC 300</td>
<td>1</td>
</tr>
<tr>
<td>CISC 310</td>
<td>3</td>
</tr>
<tr>
<td>CISP 310 or CSP 317 or CISP 319</td>
<td>4</td>
</tr>
<tr>
<td>CISP 430 or CSP 457</td>
<td>3-4</td>
</tr>
<tr>
<td>CISP 320 or 360</td>
<td>4</td>
</tr>
</tbody>
</table>

and 7 units selected from the following:
CISP 321, 350, 365, 370, 400, 401, 453 7

Recommended Electives
ACCT 311; BUS 105 CISA 305, 315, 320, 340; CISC 320 or 323; CISP 40; MGMT 300, 362; SPEECH 301 or 331

Requirements for Certificate 22 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 310; CISA 310, 320, CISP 360, 430, and CISP 450 or CISP 457</td>
<td>15</td>
</tr>
<tr>
<td>and 4 units selected from the following:</td>
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</tr>
<tr>
<td>CISP 310, 317, 319, 320, 350, 365, 370, 400, 401, 453</td>
<td>4</td>
</tr>
</tbody>
</table>

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

Technical Communication

Requirements for Degree Major 42.5 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>ART 320</td>
<td>3</td>
</tr>
<tr>
<td>ART 323</td>
<td>3</td>
</tr>
<tr>
<td>ARTNM 350</td>
<td>3</td>
</tr>
<tr>
<td>CISA 305</td>
<td>2</td>
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<tr>
<td>CISA 306</td>
<td>2</td>
</tr>
<tr>
<td>CISC 320</td>
<td>1</td>
</tr>
<tr>
<td>CISW 300/INDIS 410</td>
<td>3</td>
</tr>
<tr>
<td>ENGWR 342</td>
<td>3</td>
</tr>
<tr>
<td>ENGWR 344 or ENGWR 348 or ENGWR 350</td>
<td>1.5</td>
</tr>
<tr>
<td>ENGWR 352</td>
<td>3</td>
</tr>
<tr>
<td>and 12 units selected from the following:</td>
<td></td>
</tr>
<tr>
<td>ARTNM 324, 328, 330, 354, 402, 404; CISA 315, 340; CISW 310; ARTNM 352 or CISA 330 and CISA 331 or CISA 335 and CISA 336 and 6 units selected from the following:</td>
<td>6</td>
</tr>
<tr>
<td>ENGWR 450, 451; ENGWR 330, 331, 354, 356, 358; JOUR 300, 401; SPEECH 321 or 331</td>
<td></td>
</tr>
</tbody>
</table>

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.

Technical Communication Certificate

Requirements for Certificate 20.5 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTNM 352 or CISA 330 or CISA 331</td>
<td>3</td>
</tr>
<tr>
<td>or CISA 335 and CISA 336</td>
<td>4</td>
</tr>
<tr>
<td>or CISA 305</td>
<td>2</td>
</tr>
<tr>
<td>CISA 306</td>
<td>2</td>
</tr>
<tr>
<td>ENGWR 342</td>
<td>3</td>
</tr>
<tr>
<td>ENGWR 352</td>
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</tr>
<tr>
<td>ENGWR 344 or ENGWR 348 or ENGWR 350</td>
<td>1.5</td>
</tr>
<tr>
<td>and 6 units selected from the following:</td>
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</tr>
<tr>
<td>ARTNM 324, 328, 330, 402, 404; CISA 340; CISW 300/INDIS 410; CISW 310</td>
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</tbody>
</table>

Database

Requirements for Certificate 21 units

<table>
<thead>
<tr>
<th>Courses Required</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 310; CISA 315, 316, 320, 321; CISC 320; CISP 350, 370 and one of the following: CISP 450 or CSP 457</td>
<td></td>
</tr>
</tbody>
</table>

General Education Graduation Requirements: In addition to completing the degree requirements, students must also complete the general education graduation requirements for an A.A./A.S. degree. See ARC graduation requirements.
Software Applications

**Requirements for Certificate**

**25 units**

BUS 310
CISC 300, 305, 306, 310, 320 (Windows), 350

Web Programming

**Requirements for Certificate**

**35 units**

BUS 310
CISC 310, 320 (WIN), 323, 324
CISP 350, 360, 401
CISW 300/INDIS 410, CISW 370, CISW 470/ARTNM 406
and 4 units from the following:
CISW 310 or CISW 400
and 4 units from the following:
CISW 410, 411, 420

Web Publishing

**Requirements for Certificate**

**20 units**

ARTNM 400/CISW 350
BUS 310
CISC 310, 320 (WIN), 323
CISW 300/INDIS 410, CISW 310, 370
and 3 units from the following:
ARTNM 402, 406/CISW 470, CISW 355, 385, 442

CISA 160    **Project Management Techniques and Software (same as MGMT 142)**    **3 Units**

*Prerequisite: None*

*Advisory: ENGRD 116 or ESLW 320 or ENGRD 310 or ENGRD 320*

*Hours: 54 hours LEC*

This is an introductory course covering the responsibilities of a project manager. It includes the knowledge needed to manage a project, control costs and schedule resources. It will also introduce the use of project management software to track project resources, tasks and milestones. Not open to students who have taken Management 142.

CISA 294    **Topics in Computer Information Science - Applications**    **.5-.5 Units**

*Prerequisite: To be determined with each topic.*

*Hours: 9-90 hours LEC, 27-135 hours LAB*

This is an individualized course developed in cooperation with industry and/or government to meet specialized training needs. The course may be taken twice for credit.

CISA 305    **Beginning Word Processing**    **2 Units**

*Formerly: CISA 300*

*Prerequisite: None*

*Advisory: CISC 300*

*Course Transferable to CSU*

*Hours: 27 hours LEC, 27 hours LAB*

This is an introductory course in word processing. The course introduces word processing operations such as creating, editing, file management techniques, and printing text. Emphasis is on formatting and document production techniques to produce professional business documents used in today's workplace. The course culminates with the study of intermediate level features such as merge, sort, graphics, macros, style, and templates. This course may be taken four times on a different software package or version. AA/AS area 3D
This course introduces the student, through hands-on operation, to the use of database management programs on the microcomputer. It includes designing a database, accessing, searching, updating files, and designing and producing printed reports. The course may be taken four times on a different software package or version. AA/AS area 3D

**CISA 321 Intermediate Database Management 1 Unit**

Formerly: CISC 314
Prerequisite: CISA 320 with grade of “C” or better.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course continues the study of microcomputer database with emphasis on database design, reporting, application building, and utilization of files created using other software. This course may be taken four times on a different software package or version.

**CISA 322 Advanced Database Management 1 Unit**

Formerly: CISC 313
Prerequisite: CISA 321 with a grade of “C” or better in the corresponding software application CISA 322 package.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course continues the study of microcomputer database with emphasis on database design, reporting, application building, and utilization of files created using other software. This course may be taken four times on a different software package or version.

**CISA 330 Desktop Publishing 2 Units**

Formerly: CISC 335
Prerequisite: CISC 300, CISA 330 and ability to touch type.
Course Transferable to CSU
Hours: 27 hours LEC; 27 hours LAB
This course is designed to introduce Adobe FrameMaker as a desktop publishing tool for print and online book publishing. The focus of this course is FrameMaker's advanced functions that can enhance document presentation and automate complex and otherwise time-consuming tasks. Topics include advanced page layout/design; generating/formatting a book file, table of contents, and index; creating index entries; using advanced, automated functions, such as cross-references, hypertext links, and conditional text; and designing documents for single source output and Web-ready formats.

**CISA 340 Presentation Graphics 2 Units**

Prerequisite: None
Course Transferable to CSU
Hours: 27 hours LEC; 27 hours LAB
This course presents an in-depth look at using presentation software in business environments. Topics include elements of good presentation design, slide show techniques, integrating and linking of various software applications and media, animation effects, and the production of presentations using a variety of hardware. This course may be taken four times on a different software package or version.

**CISA 405 Scripting for Applications 3 Units**

Formerly: CISC 26
Prerequisite: None
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course is an introduction to the application scripting via object oriented programming concepts. Topics covered include the OS environment; office suites; scripting languages; user interface; creating application macros and scripts; using application objects; properties and methods; customizing applications; linking application data; buttons; boxes; graphics; data handling; error handling; control; and form handling. This course may be taken four times with a different scripting language.

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**CISE 303 Computer Familiarization 1 Unit**

Formerly: CIS 1
Prerequisite: None
Course Transferable to CSU
Hours: 18 hours LEC
This introductory course provides a general non-technical knowledge on how computers work and basic computer terminology and concepts. The focus is hands-on instruction using an operating system, word processing, spreadsheet, and Internet software. The course may be taken twice for credit.

**CISC 304 Topics in Computer Information Science - Core .5-5 Units**

Formerly: CIS 93
Prerequisite: To be determined with each topic.
Hours: 9-90 hours LEC, 27-135 hours LAB
This is an individualized course developed in cooperation with industry and/or government to meet specialized training needs. The course may be taken twice for credit.

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**CISC 335 Introduction to Adobe FrameMaker 2 Units**

Formerly: CISC 335
Prerequisite: CISC 300.
Advisory: CISTEC 300.
Course Transferable to CSU
Hours: 27 hours LEC; 27 hours LAB
This course is designed to introduce Adobe FrameMaker as a desktop publishing tool. Topics include creating, editing, and saving custom FrameMaker documents; defining elements of book and page layout/design; using templates to quickly start projects; incorporating graphics and tables; learning timesaving tips and shortcuts; producing output (hard copy and PDF); and using options to enhance new skills.

**CISC 336 Advanced Adobe FrameMaker 2 Units**

Formerly: CISC 336
Prerequisite: CISA 335.
Course Transferable to CSU
Hours: 27 hours LEC; 27 hours LAB
This course builds upon previous training in using Adobe FrameMaker, the desktop publishing tool for print and online book publishing. The focus of this course is FrameMaker's advanced functions that can enhance document presentation and automate complex and otherwise time-consuming tasks. Topics include advanced page layout/design; generating/formatting a book file, table of contents, and index; creating index entries; using advanced, automated functions, such as cross-references, hypertext links, and conditional text; and designing documents for single source output and Web-ready formats.
CISC 305  Introduction to the Internet  1 Unit
Formerly: CIS 21A
Prerequisite: None
Advisory: CISC 300.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course is an introduction to how the Internet works, how to connect, and how to use the basic services. Topics will include E-mail, the World Wide Web, newsgroups, mailing lists, Telnet, and FTP.

CISC 306  Introduction to Web Page Creation  1 Unit
Formerly: CIS 21B
Prerequisite: None
Advisory: CISC 305.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course covers the production of Web pages, including design, layout, construction, and presentation. A web-authoring tool is used to format a Web page. May be taken four times for credit on a different software package or version.

CISC 308  Exploring Computer Environments and the Internet  1 Unit
Prerequisite: None
Course Transferable to CSU
Hours: 18 hours LEC
The course introduces the fundamentals of microcomputer hardware, software and computer networking, focusing on operating systems. The fundamentals of the Internet and Internet tools are introduced.

CISC 309  Applied Applications Lab  .5 Unit
Prerequisite: None
Corequisite: CISC 300, CISA 305, CISA 306, CISA 315, CISA 316, or CISA 320.
Advisory: ENGRD 116 or ESLR 320 and ability to keyboard 20 WAM.
Course Transferable to CSU
Hours: 27 hours LAB
This course complements CISC 300, CISA 305, CISA 306, CISA 315, CISA 316, and CISA 320 by providing supplemental lab instruction. The material reinforces the concepts and techniques presented in these courses. This course may be taken four times. Credit/no credit only.

CISC 310  Introduction to Computer Information Science  3 Units
Formerly: CIS 3
Prerequisite: None
Advisory: ENGRD 116 or ESLR 320.
Course Transferable to UC/CSU
Hours: 54 hours LEC
This course is a survey of the computer field covering the function and purpose of computer hardware and software, computer programming concepts, productivity software, employment opportunities, and the social impact of the computer.

CISC 320  Operating Systems  1 Unit
Formerly: CIS 14A
Prerequisite: None
Advisory: CISC 300 and ability to touch type.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course introduces students to operating systems for the IBM and IBM compatible microcomputer. It includes lecture and hands-on application of operating system concepts, program management, file/directory organization, printer control, and procedures for installation of software. This course may be taken four times on a different operating system or version.

CISC 321  Intermediate Operating Systems  1 Unit
Formerly: CIS 14B
Prerequisite: CISC 320 (for corresponding operating system).
Advisory: One course in programming is highly recommended.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course is a hardware repair course for stand-alone personal computers. It includes training to troubleshoot hardware to a field replaceable component. It includes training to troubleshoot hardware to a field replaceable component. It includes training to troubleshoot hardware to a field replaceable component. It includes training to troubleshoot hardware to a field replaceable component.

CISC 323  Linux Operating System  1 Unit
Prerequisite: None
Advisory: CISC 300 and ability to touch type.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course introduces the Linux operating system for microcomputers. Concepts include kernels, file structures, daemons, shells, GUIs, procedures for installing software, creation of user accounts, shell commands, scripts, and file security.

CISC 324  Intermediate Linux Operating System  1 Unit
Prerequisite: CISC 323 with a grade of "C" or better.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course is a continuation of CISC 323. It covers advanced shell scripting. C Shell, K Shell, BASH and other varieties will be covered. It also includes decision-making logic, looping, nesting, and other scripting tools will be covered.

CISC 350  Introduction to Data Communications 1 Unit
Formerly: CIS 16A
Prerequisite: None
Advisory: CISC 300 and ability to touch type.
Course Transferable to CSU
Hours: 18 hours LEC
This course introduces business data communication concepts, systems, technology, protocols, theory, and basic terminology. Specific topics include analog and digital data encoding and transmission, media, interfaces, packet, circuit and broadcast networks, and data multiplexing.

CISC 351  Introduction to Local Area Networks  1 Unit
Formerly: CIS 16B
Prerequisite: CISC 320 with a grade of "C" or better.
Course Transferable to CSU
Hours: 18 hours LEC; 18 hours LAB
This course introduces local area networks and provides hands-on training in LAN applications and network administration. Topics include planning, installing, and maintaining a LAN, responsibilities of the system administrator, and human implications. The course may be taken four times on a different operating system.

CISC 361  Microcomputer Support And Repair  3 Units
Formerly: CIS 29A
Prerequisite: CISC 310, 320 (Windows), and 350 with a grade of "C" or better.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course is a hardware repair course for stand-alone personal computers. It includes training to troubleshoot hardware to a field replaceable component. Desktop operating system installation and simple networking will be covered. It provides a firm grounding in the hardware that runs the supported software and helps in distinguishing hardware from software problems. This course provides a foundation to study for and pass the A+ certification.
CISN 105  Active Directory Services  3 Units
Formerly: CIS 82
Prerequisite: CISN 102 with a grade of "C" or better.
Hours: 45 hours LEC; 27 hours LAB
This course covers installing, configuring, and administering Microsoft Windows Active Directory services. The course also focuses on implementing Group Policy and understanding the Group Policy tasks required to centrally manage users and computers. Group Policies will be used to configure and manage the user desktop environment, configure and manage software, and implement and manage security settings. May be taken three times for credit on a different software version.

CISN 109  Administering Network Infrastructure  3 Units
Formerly: CIS 84
Prerequisite: CISN 102 with a grade of "C" or better.
Hours: 45 hours LEC; 27 hours LAB
This course covers installing, configuring, managing, and supporting a network infrastructure that uses the Microsoft Windows Server products. The course focuses on TCP/IP and related services, including DHCP Server service, DNS Server service, WINS, network security protocols, Public Key Infrastructure (PKI), Internet Protocol Security (IPSec), and remote access. The course also covers configuring Windows as a network router, configuring Internet access for a network, configuring a Web server, and managing a Windows deployment using Remote Installation Services (RIS). May be taken three times on a different software version.

CISN 110  Networking Technologies - Preparation for N+ Certification  2 Units
Formerly: CISN 119
Prerequisite: None
Corequisite: CISC 305, 315, and 320 with a grade of 'C' or better.
Course Transferable to CSU
Advisory: CISC 361.
Hours: 27 hours LEC; 27 hours LAB
This course is a pre-requisite for industry N+ certification test.

CISN 111  Intermediate Networking Technologies - Preparation for N+ Certification  2 Units
Formerly: CISN 110
Prerequisite: CISN 102 with a grade of "C" or better.
Advisory: CISC 361.
Hours: 27 hours LEC; 27 hours LAB
This course is an intermediate, hands-on course in networking software and hardware. Topics covered include hardware and software support in a "help desk" environment.

CISN 112  Beginning Network Administration with Linux  3 Units
Formerly: CISN 103
Prerequisite: CIS 323 with a grade of "C" or better.
Advisory: One programming language is recommended.
Hours: 45 hours LEC; 27 hours LAB
This course covers the basics of installation and administration of the Linux Network Operating System. Topics include the following: connecting to a network, utilizing network utilities; planning, accessing, and managing file systems; planning and implementing login and file system security; administering and maintaining the user and printer environment; protecting network data; and installing network applications.

CISN 121 Intermediate Network Administration with Linux
Formerly: CISN 115
Prerequisite: CISN 120 with a grade of “C” or better.
Hours: 27 hours LEC; 27 hours LAB
This is the second in a series of three courses in Linux Network Administrations. Topics include the following: monitoring system events, setting up and configuring Apache Web Server; and setting up and configuring My SQL server.

CISN 122 Advanced Network Administration with Linux
Formerly: CISN 117
Prerequisite: CISN 121 with a grade of “C” or better.
Hours: 27 hours LEC; 27 hours LAB
This is the third in a series of three courses in Linux network administration. Topics include the following: installing and configuring network servers, clients, and print servers; creating system security; creating workgroups and accounts; and upgrading systems.

CISN 140 Cisco Networking Academy (CCNA)tm: Data Communication and Networking Fundamentals
Formerly: CISN 130
Prerequisite: None
Advisory: CISC 310, OR CISC 300 and 320.
Hours: 54 hours LEC; 18 hours LAB
This course introduces data communication and networking fundamentals. It surveys data communication hardware and software components and basic networking concepts. Topics include data communication, the OSI Model, IP addressing, routing concepts, LAN media, and network management and analyses. This is the first course in preparation for Cisco CCNA certification examination. ARC is a certified Cisco Networking Academy and all courses are taught by Cisco Certified Academy Instructors (CCAI).

CISN 141 Cisco Networking Academy (CCNA)tm: Networking Theory and Routing Technologies
Formerly: CISN 131
Prerequisite: CISN 140 with a grade of “C” or better.
Hours: 54 hours LEC; 18 hours LAB
This course provides an introduction to networking theory and routing technologies, including OSI Model, beginning router configurations, routed and routing protocols. This is the second course in preparation for Cisco CCNA certification examination. ARC is a certified Cisco Networking Academy and all courses are taught by Cisco Certified Academy Instructors (CCAI).

CISN 142 Cisco Networking Academy (CCNA)tm: Advanced Routing and Switching
Formerly: CISN 132
Prerequisite: CISN 141 with a grade of “C” or better.
Hours: 54 hours LEC; 18 hours LAB
This course provides advanced routing and switching technologies. Topics include advanced router configurations, network management, advanced network design, LAN switching, and VLANs. This is the third course in preparation for Cisco CCNA certification examination. ARC is a certified Cisco Networking Academy and all courses are taught by Cisco Certified Academy Instructors (CCAI).

CISN 143 Cisco Networking Academy (CCNA)tm: Wide-Area Network and Project-Based Learning
Formerly: CISN 133
Prerequisite: CISN 142 with a grade of “C” or better.
Hours: 54 hours LEC; 18 hours LAB
This course provides the skills to design and configure advanced wide area network (WAN) projects using Cisco IOS command set. This is the fourth course in preparation for Cisco CCNA certification examination. ARC is a certified Cisco Networking Academy and all courses are taught by Cisco Certified Academy Instructors (CCAI).

CISN 170 Web Server Administration
Formerly: CISC 86
Prerequisite: CISN 108.
Hours: 45 hours LEC; 27 hours LAB
This course covers web server installation and administration for the Internet and intranets. Topics covered include the installation, configuration, management and tuning of web servers; WWW and FTP services; security features; on-line transaction processing; and web site optimization.

CISN 174 Messaging Server Administration Using Exchange Server
Formerly: CISC 87
Prerequisite: CISN 102 with a grade of “C” or better.
Hours: 45 hours LEC; 27 hours LAB
This course covers the installation and administration of messaging servers. Topics include the installation, configuration, management and tuning of mail and messaging services on both servers and clients; mail access protocols; security issues; and Internet connectivity. May be taken 3 times for credit on a different software version.

CISN 190 Client Operating Systems
Formerly: CISC 89
Prerequisite: CISN 102.
Hours: 27 hours LEC; 27 hours LAB
This course covers the planning, installation, configuration and administration of Client Operating Systems. Client Operating Systems are an essential component for both the client/server and peer-to-peer network models. Topics covered include planning the Client Operating System implementation; installation and configuration; managing user resources; connectivity of clients in heterogeneous networking environments; monitoring and optimization of the network; and common troubleshooting techniques.

CISN 200 Designing Windows 2000 Network Security
Formerly: CISC 94
Prerequisite: CISN 102 with a grade of “C” or better.
Advisory: CISC 105 and 108.
Hours: 45 hours LEC; 27 hours LAB
This course is an introduction to designing and implementation of network strategy in an enterprise network environment. Topics include user authentication, encryption, internal and external risks, Trojans, worms, and viruses. Types of hardware and software attacks on networks, use and configuration of firewalls, file system security, logging, and auditing will be examined. It also covers security consideration for Windows 2000 servers, administrative tools, security tools, security between LAN’s and WAN’s, and security policy management.

CISN 202 Internet Security and Acceleration Server
Formerly: CISC 95
Prerequisite: CISN 105, 108 with a grade of “C” or better.
Advisory: CISN 200.
Hours: 45 hours LEC; 27 hours LAB
This course covers the design and implementation of a secure firewall between internal Windows 2000 network and the Internet. Topics covered are planning, installation, setup, configuration, troubleshooting and deploying of ISA server 2000.
CISP 314  Fiber Optic Networking  3 Units
Advisory: CISC 350.
Hours: 54 hours LEC
This course introduces basic fiber optical technologies including splices, connectors, optical sources, detectors, optical amplifiers, splitters and modulators. Optical switching technology and fiber based standards and protocols are covered along with services such as voice, data and video. Industry procedures and practices are examined.

CISP 317  Computer Organization and Assembly Language Programming  4 Units
Formerly: CISP 35
Prerequisite: CISP 317 with a grade of "C" or better.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course is an extension of the language and techniques studied in CISP 317. Topics include stacks, call frames, arrays and structures in assembly language. Hardware related topics such as interrupts, preemption and multitasking are also introduced.

CISP 320  COBOL Programming  4 Units
Formerly: CISP 36A
Prerequisite: CISP 300 or one of the following: CISP 340, 365, or 370.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course covers advanced COBOL concepts and programming techniques. The topics include sequential file processing, data editing, indexed sequential disk file processing, disk sorts, job control language, debugging techniques, table searching, segmentation, and subroutines. Emphasis is on structured design and structured programming utilizing top-down and modular techniques.

CISP 321  Advanced COBOL Programming  4 Units
Formerly: CISP 36B
Prerequisite: CISP 320 with a grade of "C" or better.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
This course covers advanced COBOL concepts and programming techniques. The topics include sequential file processing, data editing, indexed sequential disk file processing, disk sorts, job control language, debugging techniques, table searching, segmentation, and subroutines. Emphasis is on structured design and structured programming utilizing top-down and modular techniques.

CISP 330  Algorithm Design/Problem Solving  3 Units
Formerly: CIS 341
Prerequisite: None
Advisory: CISP 310.
Course Transferable to CSU
Hours: 54 hours LEC
This course introduces the Computer Science major to methods for solving typical computer problems through algorithm design. Topics covered include assessing and analyzing computer problems in a top-down, divide-and-conquer approach that leads to a programming solution. It also includes programming plans and detailed design documents from which source code versions of programs will be created.

CISP 340  FORTRAN Programming  3 Units
Formerly: CISP 33
Prerequisite: None
Advisory: CISC 310, CISP 300, and MATH 120.
Course Transferable to UC/CSU
Hours: 36 hours LEC; 54 hours LAB
This course is an introduction to the computer solution of problems by programming in FORTRAN. The emphasis is on learning the language and structured programming techniques. While problems from many disciplines will be presented, emphasis is placed on solving problems in engineering and the physical sciences. Appropriate for all majors in engineering, science and mathematics. (CAN CSCI 4) AA/AS area 3D

CISP 350  Database Programming  3 Units
Formerly: CISP 37
Prerequisite: None
Advisory: CISC 310, CISA 320, CISA 321, and CISP 300.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This is an introductory course to programming in database. The topics include analysis and design, modular programming, screen displays and menus, and multiple databases. AA/AS area 3D

CISP 360  Introduction to Structured Programming  4 Units
Formerly: CISP 32A
Prerequisite: A grade of "C" or better in one of the following: CISP 300, 320, 340, 365, 370.
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB

This course is an introduction to structured programming and objects. Topics include Top-down, variables, control flow, constants, libraries, arrays, functions, arguments, input/output, classes and objects. AA/AS area 3D

**CISP 365** Structured Programming with PASCAL  
**4 Units**

Formerly: CIS 31  
Prerequisite: None  
Advisory: CISC 310, CISP 300, MATH 120.  
Course Transferable to UC/CSU  
Hours: 54 hours LEC; 54 hours LAB  
This course is an introduction to PASCAL, a language which emphasizes the concepts of structured programming. Topics include topdown design, output-input, data types, control structures, functions and procedures. Students will design, code test, and run PASCAL programs. (CAN CSCI 12)

**CISP 370** Beginning Visual Basic  
**4 Units**

Prerequisite: None  
Advisory: CISC 310 and CISP 300.  
Course Transferable to CSU  
Hours: 54 hours LEC; 54 hours LAB  
This is an introductory programming course employing the language of Visual BASIC. Concepts and problems relate to a graphic user interface operating system (such as Windows) and object oriented programming. Terms, rules, and program components used in desktop customization will be explored. Applications include control menu boxes, menu bars, and scroll bar development.

**CISP 371** Intermediate Visual Basic  
**4 Units**

Prerequisite: CISP 370 with a grade of “C” or better.  
Course Transferable to CSU  
Hours: 54 hours LEC; 54 hours LAB  
This is the second course in Visual Basic programming. The course examines data and its relationship to the functions that operate on data. Topics include forms, components, properties, classes, objects, static and dynamic relationships, databases, data sets, queries, hierarchies, inheritance, coding, dialog boxes, associations, testing, and debugging. This course may be taken four times with a different version of Visual Basic.

**CISP 400** Object Oriented Programming with C++  
**4 Units**

Formerly: CIS 32B  
Prerequisite: CISP 360 with a grade of “C” or better.  
Course Transferable to UC/CSU  
Hours: 54 hours LEC; 54 hours LAB  
This course is an introduction to the C++ programming language and object-oriented programming. Topics include operation, encapsulation and overloading, classes, inheritance and virtual functions. (CAN CSCI 18) AA/AS area 3D

**CISP 401** Object Oriented Programming with Java  
**4 Units**

Formerly: CISP 409  
Prerequisite: CISP 360 with a grade of “C” or better.  
Course Transferable to UC/CSU  
Hours: 54 hours LEC; 54 hours LAB  
This course is an introduction to object oriented programming using the Java programming language. Topics include: objects, inheritance, polymorphism, interfaces, abstract classes, inner classes, error handling, graphical user interfaces, applets, threads, files, databases, and packages.

**CISP 430** Data Structures  
**4 Units**

Formerly: CISP 410  
Prerequisite: A course in the fundamental language of the object oriented programming being used with a grade of “C” or better. CISP 365 (Pascal) or CISP 360 or CISP 400 (C or C++).  
Course Transferable to UC/CSU  
Hours: 54 hours LEC; 54 hours LAB  
This course uses a case study approach applying techniques for systematic problem analysis, program specification, design, coding, testing, debugging and documentation of large programs. The course uses advanced language features such as strings, sets, non-text files, pointers and recursion. Elementary abstract data structures, and selected searching and sorting techniques are also covered. (CAN CSCI 24)

**CISP 440** Discrete Structures for Computer Science  
**3 Units**

Formerly: CIS 44  
Prerequisite: MATH 370 with a grade of “C” or better.  
Corequisite: CISP 430.  
Course Transferable to UC/CSU  
Hours: 54 hours LEC  
This course is an introduction to the essential discrete structures used in Computer Science, with emphasis on their applications. Topics to be covered include elementary formal logic and set theory, elementary combinatorics, recursive programming and algorithm analysis, digital logic and switching, combinatorial circuits, and computer arithmetic. AA/AS area 3D; CSU area B3

**CISP 453** Introduction to Systems Programming in UNIX  
**4 Units**

Prerequisite: CISP 360 with a grade of “C” or better.  
Corequisite: CISP 323.  
Course Transferable to CSU  
Hours: 54 hours LEC; 54 hours LAB  
This course covers the features of the C language commonly used in systems programming, and the application of those features to systems programming in a Linux/UNIX environment. Topics include C preprocessor macros, I/O, bit-manipulation facilities; timesharing system concepts; shell script programming; make files and source code control; basic system calls including fork and exec; pointers and dynamic memory allocation; libraries and relocation and linking concepts including assembler handling of symbol tables.

**CISP 457** Computer Systems Analysis and Design  
**3 Units**

Prerequisite: CISC 310 and one of the following: CISP 317, CISP 319, CISP 320, CISP 340, CISP 360, CISP 365, or CISP 370.  
Advisory: CISA 305 and CISA 340.  
Course Transferable to CSU  
Hours: 54 hours LEC  
This course covers the methods used to analyze, design, and implement a computer system that meets client business needs. The methodology emphasizes the skills needed by a system analyst throughout the steps of a system development life cycle. These steps include system feasibility, analysis, design, implementation, documentation, and evaluation.

**CISS 300** Introduction to Information Systems Security  
**1 Unit**

Prerequisite: None  
Course Transferable to CSU  
Hours: 18 hours LEC; 18 hours LAB  
This course provides an introduction to network-based and Internet-based security applications and standards. Topics include cryptography, security protocols, network security applications, encryption, hash functions, digital signatures, viruses and key exchange.

**CISS 301** Ethical Hacking  
**2 Units**

Prerequisite: None  
Advisory: CISC 320, 323, 350 or 351.  
Course Transferable to CSU  
Hours: 27 hours LEC; 27 hours LAB  
This course introduces basic security concepts, principles and “best practices” and explores ways in which security for a stand-alone PC and a network-connected PC can be compromised. It provides ways in which the security of
a PC can be checked and evaluated. Principles of ethical hacking are discussed. Internal and external security threats are discussed, including viruses, worms, trojans, scripts and other malicious e-mail content. Network vulnerabilities, common exploits and basic countermeasures are discussed.

### CISS 310  Network Security Fundamentals  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course provides the information and skills required to analyze security risks from potential intrusion to organizations' network information systems. Topics cover the content of the CompTIA Security+ exam.

### CISS 320  Implementing Network Security and Counter Measures  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course covers network and operating system security breaches and deployment of the industry standard countermeasures, including configuring Virtual Private Networks (VPN) connections. Topics include the evaluation, implementation, and management of secure remote-access technologies.

### CISS 330  Implementing Internet Security and Firewalls  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**<Hour> Hours:** 45 hours LEC; 27 hours LAB
This course demonstrates how to configure network firewalls to allow access to key services while maintaining security, and implementing firewall-to-firewall Virtual Private Networks (VPNs). Topics cover the content of the Check Point Security's "Check Point Certified Security Administrator" (CCSA) certification.

### CISS 341  Implementing Microsoft Windows Operating Systems Security  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course provides in-depth explanations of Microsoft Windows operating system security features as well as step-by-step configuration guides for proper operating system security configuration. The knowledge and skills needed in order to maintain the integrity, authenticity, availability, and privacy of data are covered.

### CISS 342  Implementing UNIX/Linux Operating System Security  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course presents in-depth explanations of the UNIX/Linux operating system security features as well as step-by-step configuration guides for proper operating system configuration. Topics include data and system integrity, authenticity, availability, and privacy of data.

### CISS 350  Disaster Recovery  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course provides methods for identifying vulnerabilities and implementing countermeasures to prevent and mitigate failure risks for the business enterprise. Topics include disaster recovery, development of a disaster recovery plan, and development and implementation of disaster recovery policies and procedures.

### CISS 360  Computer Forensics and Investigation  3 Units
**Prerequisite:** CISS 310 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 45 hours LEC; 27 hours LAB
This course introduces the methods used to conduct a computer forensics investigation. Topics include an overview of computer forensics as a profession, the computer investigation process, operating systems boot processes' and disk structures, data acquisition and analysis, technical writing, ethics, and a review of standard computer forensics tools. The course topics map to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification.

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**CISW 300  Web Publishing (same as Interdisciplinary Studies 410)  3 Units**
**Formerly:** CIS 22
**Prerequisite:** None
**Advisory:** CISW 300 and CISC 305.
**Course Transferable to CSU**
**Hours:** 36 hours LEC; 54 hours LAB
This course is an introduction to publishing on the World Wide Web. Topics include creating WWW pages with the Hyper Text Markup Languages (HTML), organizing a series of pages into a web site, and uploading web pages to a server. The course makes extensive use of the computer tools necessary to insert HTML tags, create images, and view web documents. This course prepares apprentice web designers and publishers to identify the information dissemination needs of a client, design an appropriate WWW solution, and implement it. Not open to those students who have taken INDIS 410.

### CISW 310  Advanced Web Publishing  4 Units
**Formerly:** CIS 23
**Prerequisite:** CISW 300.
**Course Transferable to CSU**
**Hours:** 54 hours LEC; 54 hours LAB
This course builds upon previous web publishing concepts and study. The primary focus of this course is the systematic development of interactive web sites. Topics include cascading style sheets, dynamics HTML, forms, client-side programming with JavaScript, CGI scripting with Perl, and web-database interactivity.

### CISW 315  Imaging for the Web (same as ARTNM 400)  1 Unit
**Prerequisite:** None
**Advisory:** CISW 300 or CISC 306.
**Course Transferable to CSU**
**Hours:** 18 hours LEC; 18 hours LAB
This course takes an in-depth look at designing graphics for the Web. Industry standard graphic software is used to create original graphics as well as to manipulate found imagery. Topics include developing graphic elements for a Web site using a visual theme, creating buttons and intuitive navigational elements, making background textures and images, understanding Web file formats, scanning, presenting to a client, and simple animation. May be taken twice for credit on a different platform or graphics software package. Not open to those students who have taken ARTNM 400.

### CISW 355  Web Imaging Projects  2 Units
**Prerequisite:** CISW 350 or ARTNM 402 or ARTNM 400 with a grade of “C” or better.
**Course Transferable to CSU**
**Hours:** 27 hours LEC; 27 hours LAB
This course is a continuation of CISW 350. Projects and simulations developing graphics for the web are created for the purpose of marketing and advertising on the Web. The steps, procedures, and common problems encountered
when producing quality graphics for professional Web sites are discussed and practiced. Real and simulated projects will include the following: compressing and uploading times, cropping and resizing, digital camera imaging, retouching text, implementing backgrounds, buttons, themes, image maps, slicing, and simple animations.

CISW 370  Designing Accessible Web Sites  1 Unit
Formerly: CIS 22D
Prerequisite: CISW 300 with a grade of “C” or better.
Course Transferable to CSU
Hours: 18 hours LEC
This course provides an overview of the methods that are used to design web sites for people with disabilities. Current legal requirements for accessible web sites, especially the Americans with Disabilities Act (ADA), are emphasized.

CISW 385  E-Commerce  3 Units
Prerequisite: CISC 305 or CISW 300 with a grade of “C” or better.
Course Transferable to CSU
Hours: 54 hours LEC
This course provides both the beginner and the professional with a working knowledge of e-commerce. It emphasizes the theory and practice of marketing in an electronic environment. The personalization and interactivity of commercial web sites as a tool to build strong customer relationships are stressed.

CISW 400  Client-side Web Scripting  4 Units
Formerly: CIS 25A
Prerequisite: CISW 300 with a grade of “C” or better.
Advisory: CISW 310 and CISP 300.
Course Transferable to CSU
Hours: 54 hours LEC; 54 hours LAB
This course emphasizes the creation of dynamic and interactive web sites using a client-side scripting language such as JavaScript. Topics include the Document Object Model of web pages, core features of the client-side scripting language, event handling, control of windows and frames, functions, and form validation. May be taken twice on a different client-side scripting language.

CISW 410  Middleware Web Scripting  4 Units
Formerly: CIS 25B
Prerequisite: CISW 300 with a grade of “C” or better.
Advisory: CISW 310 and CISP 300.
Course Transferable to CSU
Hours: 54 hours LEC; 54 hours LAB
This course emphasizes the creation of interactive web sites using a middleware scripting environment such as PHP or ASP. Topics include core features of the middleware scripting language, embedding server commands in HTML pages, control structures, functions, arrays, form validations, cookies, environmental variables, email applications, and database-driven web applications. May be taken twice in a different middleware web scripting environment.

CISW 411  Middleware Scripting Database Web Applications  2 Units
Prerequisite: CISW 410 with a grade of “C” or better.
Advisory: CISW 310.
Course Transferable to CSU
Hours: 27 hours LEC; 27 hours LAB
This course includes interactive database applications for the Web using a database and middleware scripting language. Topics include organizing data, developing tables for databases, creating middleware scripts that add, delete, sort, edit and merge the data in the database. Maintaining database integrity, and using DHTML to streamline certain client side functions such as form validation are covered.